

Claims

1. A medical device for treating a portion of the body of a living organism, comprising, at least one layer of conductive material;

5 wherein the conductive material comprises a resistance of less than about 1000 Ohms/cm<sup>2</sup>; and

wherein no external energy source or galvanic cell action is required to alter the electrodynamic processes of a portion of the body of a living organism.

10 2. The medical device of Claim 1, wherein the conductive material is at least partially composed of a metal or a metal alloy.

15 3. The medical device of Claim 1, wherein the conductive material is at least partially composed of a material selected from the group consisting of polymers, carbon composites, elastomers, and silicon matrix containing metal particles.

20 4. The wound dressing of Claim 2, wherein the metal is selected from the group consisting of silver, gold, aluminum, nickel, tin, stainless steel, copper, and combinations thereof, and the metal alloy is selected from the group consisting of aluminum-copper, aluminum-magnesium, copper-gold, copper-nickel, copper-palladium, gold-palladium, gold-silver, iron-nickel and silver-palladium, and combinations thereof.

25 5. The medical device of Claim 1, wherein the medical device is a wound dressing.

6. The medical device of Claim 1, wherein the medical device is an orthotic appliance.

30 7. The medical device of Claim 1, wherein the medical device is a dental appliance.

8. The medical device of Claim 5, wherein the wound dressing is shaped for a use around external fixture pin structures.

9. The medical device of Claim 5, wherein the medical device is shaped for a 5 use around ostomy sites.

10. The medical device of Claim 5, wherein the wound dressing is shaped for a use around tracheostomy sites.

11. The medical device of Claim 5, wherein the wound dressing is shaped for 10 a use around catheter sites.

12. The medical device of Claim 5, wherein the wound dressing is shaped for packing body cavities.

15 13. The medical device of Claim 1, wherein the device has a tubular shape.

14. The medical device of Claim 13, wherein the tubular shape is incorporated into a wound drain.

20 15. A medical device, comprising, a wound dressing incorporated into an appliance;

wherein the wound dressing comprises a plurality of layers of a fibrous material; wherein the material contains nonmetalized fibers and fibers that are at least

25 partially coated with a metallic material to yield metalized fibers, each layer being joined to an adjacent layer and having a ratio of metalized fibers to nonmetalized fibers; and wherein the layers form a gradient of metalized fiber to nonmetalized fiber ratios, the highest ratio layer capable of being placed in a contact with a wound site.

16. The medical device of Claim 15, wherein the appliance is shaped for a use selected from the group consisting of orthopedic, dental, catheter packing a body cavity, an ostomy site, a tracheostomy site, and around external fixture pin structures.

5 17. The medical device of Claim 15 wherein the appliance has a tubular shape.

18. The medical device of claim 17 wherein the tubular shape comprises a wound drain.

10 19. A method for accelerating healing and treating pain of a portion of the body of a living organism comprising:

a.) applying a medical device for treating a portion of the body of a living organism comprising, at least one layer of conductive material;

15 wherein the conductive material comprises a resistance less than about 1000 Ohms/cm<sup>2</sup>; and

wherein no external energy source or galvanic cell action is required to alter the electrodynamic processes of a portion of the body of a living organism;

20 b.) altering the electric parameters of the portion of the body without using an external energy source or galvanic cell action; and

c.) lowering the electrical resistance and increasing the current of the portion of the body.